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Figure 1

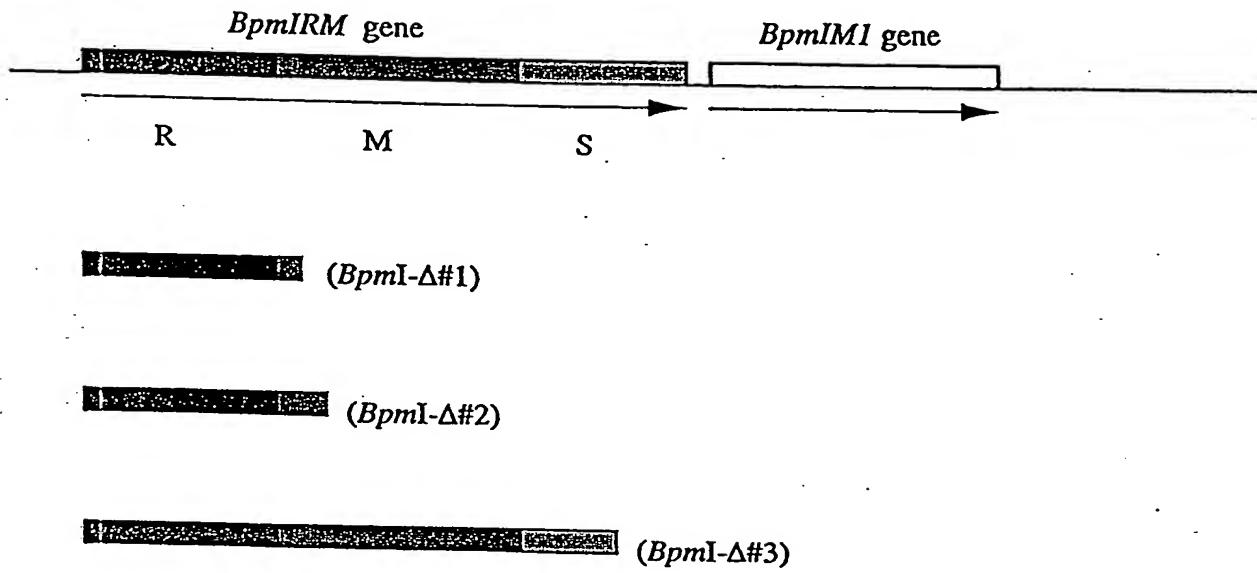


Figure 2.

ATGAATCAATTAAATTGAAAATGTTAATCTACAAAATTAAAGGGTGGGTATTACACCCCT
 1 M N Q L I E N V N L Q K L R G G Y Y T P 60
 AAAGTTATTGCTGACTTTTATGTCATGGAGTATTCAAGATGACACAAAGAGTGTACTT
 61 K V I A D F L C Q W S I Q D D T K S V L 120
 GAACCCAGTTGGAGATGGTAATTATTGAATCGGCAATACTTAGGTTCAAAGAACCTT
 121 E P S C G D G N F I E S A I L R F K E L 180
 AGTATAGATAATGAACAACCTAAAGGAAGAATTACAGGAGTAGAGCTAATTGAAGAAGAA
 181 S I D N E Q L K G R I T G V E L I E E E 240
 GCTTTGAAAGTTCAAAATCGAGCAAATGAGTTGGGGTTGATAAAAACCTCAATAGTAAAT
 241 A L K V Q N R A N E L G V D K N S I V N 300
 AGTGACTTCTTCATAATTGTAAAAGATAATAAGAATAAAAAATTGATACTATTATTGGT
 301 S D F F Q F V K D N K N K K F D T I I G 360
 AATCCACCATTCTATAAGATAACCAAAACTTCTGAAGAGCATCGTAGTATAGCCATGGAA
 361 N P P F I R Y Q N F P E E H R S I A M E 420
 ATGATGGAGGAACCTAGGTTAAACCTAATAAACTTACAAATATCTGGGTCCATTCTA
 421 M M E E L G L K P N K L T N I W V P F L 480
 GTGGTATCTGCTACATTACTTAATGAACAAGGAAAGATGGCTATGGTTATACCGGCTGAA
 481 V V S A T L L N E Q G K M A M V I P A E 540
 TTATTCAGGTAAAGTATGCAGCAGAAACAAGAATTTTTATCAAAGTTTCGATCGT
 541 L F Q V K Y A A E T R I F L S K F F D R 600
 ATCACTATAATTACATTGAAAAACTTGTTTGAAAATATCCAACAGGAAGTTACTA
 601 I T I I T F E K L V F E N I Q Q E V I L 660
 CTTCTTTGAAAAGAAAGTTAATAAAAGGTAAAGGAATTGGTTATTGAATGCGAGAAC
 661 L L C E K K V N K G K G I R V I E C E N 720
 TTAGATGGATTAAATTCCATTGATTGTAGCTATAATGGTCAATGTTAAACCTATT
 721 L D G L N S I D F V A I N G S N V K P I 780
 GAACACCGTACTGAAAAGTGGACAAAGTATTCTAAACGAAGATGAAATACTCTTTA
 781 E H R T E K W T K Y F L N E D E I L L L 840
 CAGAGTTAAAGGAAGACAAACCGCTTAAAATTGTAATGACTATTAAAGACAGAAGTT
 841 Q S L K E D K R V K N C N D Y F K T E V 900
 GGCTTAGTTACTGGACGAAACGAATTCTTATGATGAAAGAAAACCAAGTAAAAGAATGG
 901 G L V T G R N E F F M M K E N Q V K E W 960
 AATCTAGAAGAATATACAATACCTGTTACAGGTAGGTCAAATCAGTTAAAAGGTATAACA
 961 N L E E Y T I P V T G R S N Q L K G I T 1020

Figure 2. (continued)

1021	TTTACAGAAAAATGATTTCATGAAAATTCAATGGAACAAAGGCAATTACCTATTTTG F T E N D F H E N S M E Q K A I H L F L CCACCAAGATGAAGATTTGAAAAGTTACCGATTGAGTGTCAAAATTATATCAAGTATGGG P P D E D F E K L P I E C Q N Y I K Y G GAAGAAAAAGGCTTCATCAAGGCTATAAAACCAGAATTAGAAAACGTTGGTATATAACT E E K G F H Q G Y K T R I R K R W Y I T CCATCTAGATGGGTTCCAGATGCTTTGCTTAAGACAGGTTGATGGCTATCCAAAACTA P S R W V P D A F A L R Q V D G Y P K L ATTTAAATGAAACCGACGCTCTCTACTGATAACAATTCATAGGGTTAGATTAAAGAA I L N E T D A S S T D T I H R V R F K E GGTATAAAATGAAAAGTTAGCCGTAGTTCACTTTGAACTCACTCACTTTGCATCTTC G I N E K L A V V S F L N S L T F A S S GAAATAACGGGGAGAAGTTATGGTGGTGTATGACATTGAAACCAACTGAAATTGGA E I T G R S Y G G G V M T F E P T E I G GAAATCTTAATACCTTCCTTGATAACTTATCCATTGATTTGATAAAATTGATGCCCTTA E I L I P S F D N L S I D F D K I D A L ATTCGAGAAAAGGAGATTGAAAAAGTCCTTGATATTGTTGATGAAAGCTTACTTATAAAA I R E K E I E K V L D I V D E A L L I K TATCATGGGTTAGTGAGAAAGAAGTAAACAGCTCGAGGGATATGGAAGAAACTTTCT Y H G F S E K E V K Q L R G I W K K L S CAGAGAAGAAACAATAGAACCGAAGAAATAA Q R R N N R T K K *	1080 1140 1200 1260 1320 1380 1440 1500 1560 1620 1650
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Figure 3.

ATGCATATAAGTGAGTTAGTAGATAAAATACAAAGCGCATAGAAGTACTTTTAAACCA
 1 M H I S E L V D K Y K A H R S T F L K P
 ACTTATAATGAAACTCAACTAAGGAATGATTATAGACCCACTCTAAATCTTAGGA
 61 T Y N E T Q L R N D F I D P L L K S L G
 TGGGATGTTGATAATACCAAGGAAAAACACATATTCTAAGAGATGTCAAGAAGAA
 121 W D V D N T K G K T H I L R D V I Q E E
 TACATAGAAAATAAAAGATGAGGAGACAAAGAAAAATCCAGATTATACTACACTTCGTATAAAC
 181 Y I E I K D E E T K K N P D Y T L R I N
 GGTACGAGAAAGCTGTTGAGAGTTAAGAAACCGTCTTTAATATTTGAAATCAGCT
 241 G T R K L F V E V K K P S F N I L K S A
 AAAGCAGCCTTCAAACAAGAAGATATGGTTGGAGTGCTAACCTGGTATTTAGTACTT
 301 K A A F Q T R R Y G W S A N L G I S V L
 ACAAAATTTCGAGCATCTAGTTATGATTGTAGATATA CGCTGACAATCCGACAAT
 361 T N F E H L V I Y D C R Y T P D K S D N
 GAACATATTGCTAGATATAAGTTCTCTACAGGAAATATGAAGAAGCATTGATGAA
 421 E H I A R Y K V F S Y E E Y E E A F D E
 ATAAAGGATATAATTTCATATGAGTCAGCCA ACTCAGGTGCTCTGGACGAAATGTTGAT
 481 I K D I I S Y E S A N S G A L D E M F D
 GTAAAATACAAGAGTTGGTAAACGTTGACGAGTATTTTACAGCAAATGAGAATTGG
 541 V N T R V G E T F D E Y F L Q Q I E N W
 CGCGAAAAGCTAGCTAAACACTGCAATTAAAATAACACCGAATTAGGTGAAGAGGACGTC
 601 R E K L A K T A I K N N T E L G E E D V
 AATTTTATGTCAAAGACTATAAACAGAATTATTTCTTAGAGTTGTGAAGATAGA
 661 N F I V Q R L L N R I I F L R V C E D R
 ACCATTGAAAAATATGAAACAATTAAAAGTATAAAAAACTATGAGGAATTAAAGATCTG
 721 T I E K Y E T I K S I K N Y E E L K D L
 TTTCAAAAGTCTGATAGGAAATTAAATTCAAGGTCTCTTGACTTCATAGATGATACGCTC
 781 F Q K S D R K F N S G L F D F I D D T L
 TTGCTTGAGGTTGAAATTGATTGAATGTATTGATAGAAATTAGTGAATTATTTTC
 841 L L E V E I D S N V L I E I F S D L Y F
 CCACAAAGCCCATAATGATTCTGTTGTCGATCCAACAATTAAAGCCAGATATGAA
 901 P Q S P Y D F S V V D P T I L S Q I Y E
 CGTTTTCTAGGTCAAGAAATAATTATAGAGTCAGGTGGTACATTTCACATTACGGAGTC
 961 R F L G Q E I I I E S G G T F H I T E S
 1020

Figure 3. (continued)

1021	CCAGAAGTTGCCGGCGTCCAATGGTGTTGTTCCAAC	1080
	TCACCCAAAATTATCGTCGAACAGATA	
	-----+-----+-----+-----+-----+	
	P E V A A S N G V V P T P K I I V E Q I	
	GTGAAAGACACTTTAACGCCCTTACGGAAGGC	
1081	AAAAAATTAAATGAGCTATGTAACCTTA	1140
	V K D T L T P L T E G K K F N E L C N L	
	AAAATAGCAGATATATGTTGAGATCAGGAAC	
1141	TTTCCTAAATTCAAGTTATGACTTTCTA	1200
	K I A D I C C G S G T F L I S S Y D F L	
	GTAGAGAAAGTAATGGAAAAGATAATAGAAGAGAACATCGATGATT	
1201	CAGATTAGTATATCTTGAGCTTCTAAGTATGACTTTCTA	1260
	V E K V M E K I I E E N I D D D S D L V Y	
	GAAACTGAAGAAGGGCTAATTGACACTTAAAGC	
1261	AAAAGAAATATCTTGAGAGATAAT	1320
	E T E E G L I L T L K A K R N I L E N N	
	TTGTTTGGTGTGATGTTAACATCCATACGCTGTTGAAGTAGCTGAG	
1321	TTCAGTTTATTATTATTA	1380
	L F G V D V N P Y A V E V A E F S L L L	
	AAGCTATTAGAAGGTGAGAACATGAGGCATCGGTTAATAATT	
1381	TCATTCACGAGCATGAGGAT	1440
	K L L E G E N E A S V N N F I H E H E D	
	AAAATATTACCGGATTAAACATCTATTAAATGTGAAACAGCTTAGT	
1441	AGATAATAAG	1500
	K I L P D L T S I I K C G N S L V D N K	
	TTTTTGAAATTCAATGCCAGAACATCGTTAGAGGACGATGAA	
1501	ATCTTATTAAAGCTTAATCC	1560
	F F E F M P E S L E D D E I L F K A N P	
	TTTGAATGGGAAGAGGAGTTCCAGATATTATGGCAATGGCTTGT	
1561	GCTATTATAAGCTATTATA	1620
	F E W E E E F P D I M A N G G F D A I I	
	GGAAATCCACCTTATGTCGAATACAGAACATGAAAAAATATAG	
1621	TCCTGAGGAAATTGAA	1680
	G N P P Y V R I Q N M K K Y S P E E I E	
	TATTATCAATCAAAGACTCTGAATATACTGTTGCAAAAAAAGAA	
1681	ACAGTTGACAAGTAT	1740
	Y Y Q S K D S E Y T V A K K E T V D K Y	
	TTTTTATTATTGAGAGAGCATTAAATTACTCAATCCTACTGGCTG	
1741	TGGTTGGTTATATA	1800
	F L F I E R A L I L L N P T G L L G Y I	
	ATACCGCATAAAATTCTTATTACAAAAGGTGGTAAGGAAC	
1801	TAAGAAAGTTCATAGCTGAA	1860
	I P H K F F I T K G G K E L R K F I A E	
	AAACATCAAATATCAAATTTGGTGTACACAGGTCTTCCAGGAA	
1861	AGAGCG	1920
	K H Q I S K I I N F G V T Q V F P G R A	
	ACATATAACGGCTATTTAATTATCCAAGCAAATAAATGGCACAG	
1921	TTCAAGTATAAGAAA	1980
	T Y T A I L I I Q A N K M A Q F K Y K K	
	GTAAGTAATATCAGCAGAAACCCCTAGATTCTGAAGAAA	
1981	ACAGTGTGTTATAGCTCA	2040
	V S N I S A E T L D S E E N T C V Y S S	

Figure 3. (continued)

2041	GAAAAGTATAATTCTGACCCTGGATATTTTATCTCCTGAAACAGAAGCTTTTACT	2100
	- - - + - + - + - + - + - + - + - + - + - + - + - + - + - + - +	
	E K Y N S D P W I F L S P E T E A V F T	
	AAATTTACAGAAGCTCAATTGAGAAACTGGAGAAATCACTGATATAAGTGTAGGACTA	
2101	K F T E A Q F E K L G E I T D I S V G L	2160
	CAAACAAAGCGCTGATAAAATATATATTTCCTGAAAATGAAACCTTCAGATACATAT	
2161	Q T S A D K I Y I F I P E N E T S D T Y	2220
	ATATTTAATTATAAAGGGAAAAGATATGAAATAGAAAAATCTATATGTTGCCAGCTATC	
2221	I F N Y K G K R Y E I E K S I C C P A I	2280
	TATGACTTATCTTTGGTCTTTGAAAGCATTCAAGGGAAATGCACAAATGATATTCCCT	
2281	Y D L S F G S F E S I Q G N A Q M I F P	2340
	TATGAAATCAGAGATGAAGAACCATATCTACTAGAGGAAGAACGCTTGAAAATGATTAT	
2341	Y E I R D E E A Y L L E E E T L E N D Y	2400
	CCTCTTGCTTGGAAATTGGATGAGTTAAAGAAGCTCTGAAAAAGAAGCTTACAA	
2401	P L A W N Y L N E F K E A L E K R S L Q	2460
	GGCCGTAATCCGAAATGGTATCAATATGGTCGGTCCAAAGTTATCAAAATTTCATGAT	
2461	G R N P K W Y Q Y G R S Q S L S K F H D	2520
	AAAGAAAAACTGATATGGACCGTACTTGCTACGAAACCCCCGTATGTACTTGATAGGAAT	
2521	K E K L I W T V L A T K P P Y V L D R N	2580
	AACCTGTTATTTACTGGTGGTGGAAACGGACCGTATTATGGTTAATTAAACCAATCTATT	
2581	N L L F T G G G N G P Y Y G L I N Q S I	2640
	TACTCTTGCAATTATTTTAGGTATTCTTCACATCCTGTAATAGAAAGTATGGTAAAA	
2641	Y S L H Y F L G I L S H P V I E S M V K	2700
	GCAAGGGCCAGTGAATTAGGGATCATATTATTCTCATGGAAAACAATTATTGAGAAA	
2701	A R A S E F R G S Y Y S H G K Q F I E K	2760
	ATCCCATTAGAAAGATTGATTTGATGATCAAGATGAGGTAGACAAATATAACGGTG	
2761	I P I R K I D F D D Q D E V D K Y N T V	2820
	GTCACAACAGTAGAAAAATTAAATTATAACTACCGATAGAATTAAAGTGAGAGCAATGGA	
2821	V T T V E K L I I T T D R I K S E S N G	2880
	CCCCGGAGGGAGAATGTTAAGAAGAAGGTTAGATGCTTGTCTAATCAACTTATCCAGTT	
2881	P R R R M L R R R L D A L S N Q L I Q V	2940
	ATTAATGAACCTTATAATATCACTGACGAAGAATATACGACAGTTTGAAATGATGAAATG	
2941	I N E L Y N I S D E E Y T T V L N D E M	3000
	TTGACAGCGCGTTAGGAGAAGAAAAATGA	
3001	L T A A L G E E K *	3030

Figure 4

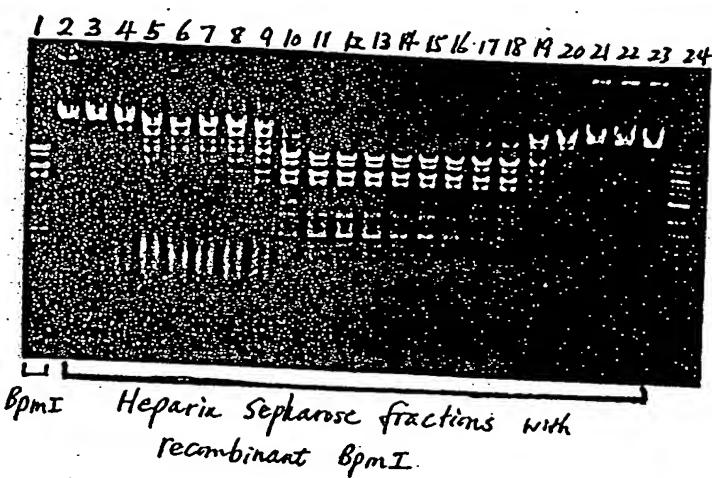


Figure 5

Catalytic	Methylation	Specificity
X I	IV	

Figure 6

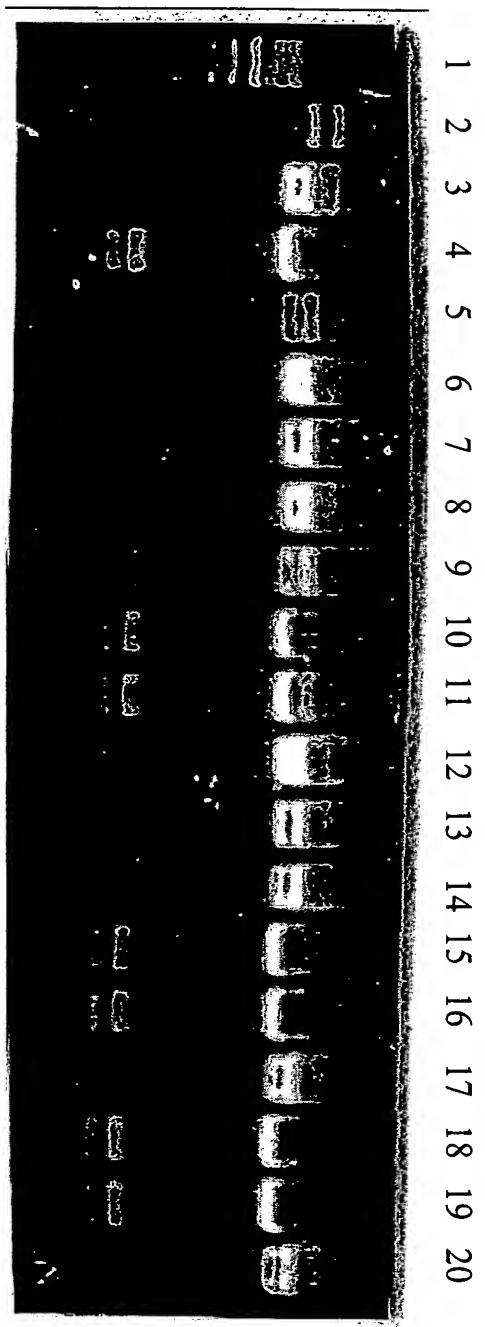


Figure 7

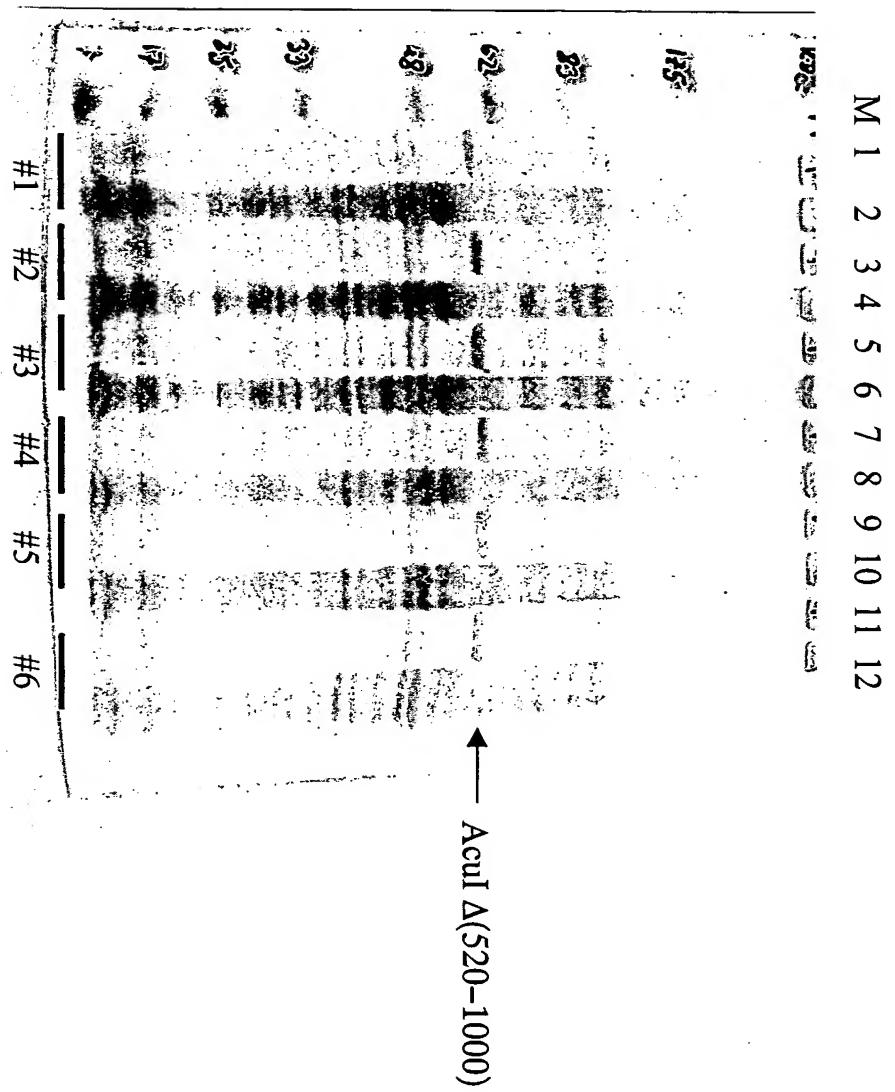
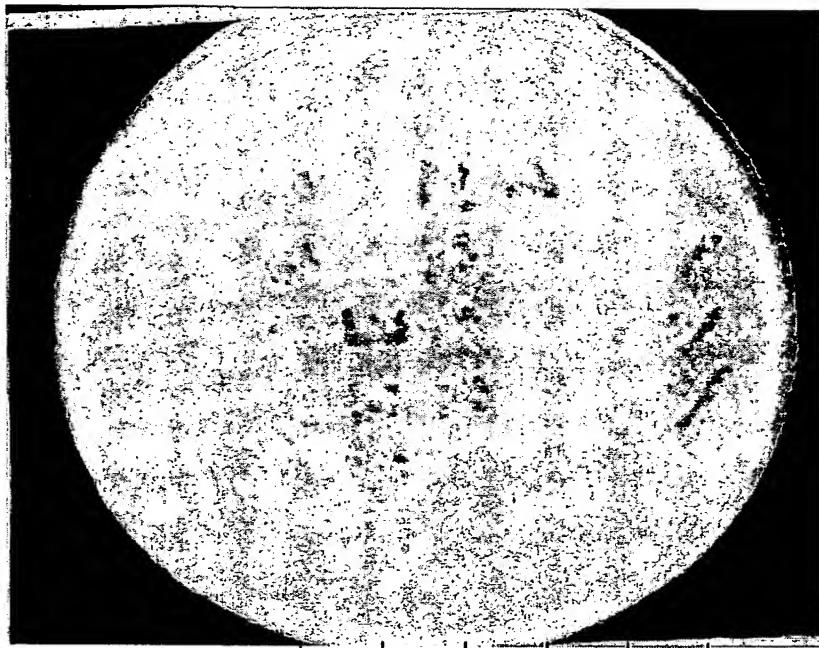


Figure 8



BstYI mutant (blue)

Vector control (white)

Blue colony #1

Blue colony #2

Blue colony #3

Blue colony #3